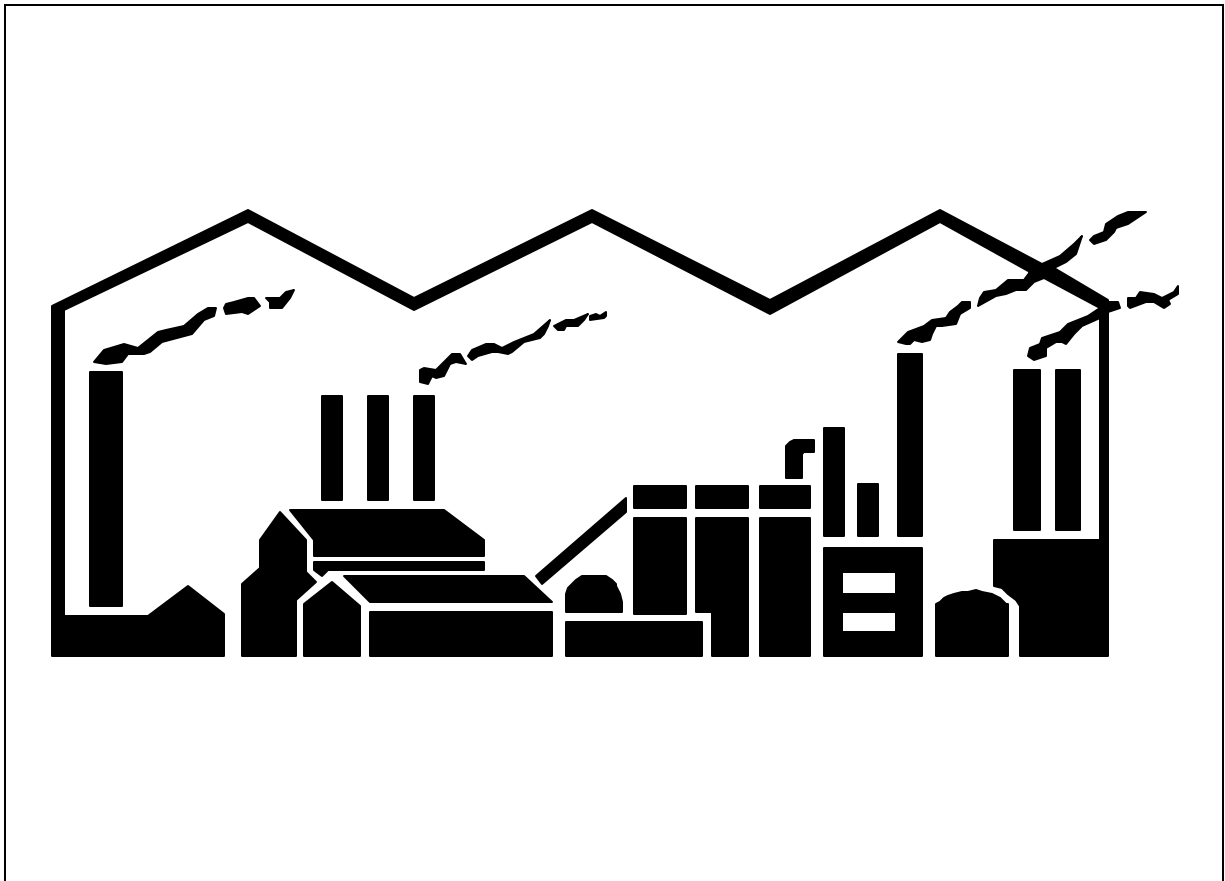


CENSUS OF FATAL OCCUPATIONAL INJURIES



MICHIGAN, 2000

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MIOSHA Information Division
Michigan Dept. of Consumer
& Industry Services
October, 2001

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FATAL WORK INJURIES IN MICHIGAN, 2000

Injuries sustained in transportation accidents resulted in the death of 50 Michigan workers in 2000. This represents 32 percent of the 156 workers fatally injured in Michigan in 2000. Highway accidents accounted for 24 fatalities or 15 percent of the total. Being struck by an object resulted in the death of 25 Michigan workers and 20 others were killed as the result of falls. Assaults and violent acts accounted for 26 deaths or 17 percent of the total. These findings are from the Census of Fatal Occupational Injuries conducted by the Michigan Department of Consumer & Industry Services, MIOSHA Information Division in cooperation with the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor.

The Census of Fatal Occupational Injuries uses multiple sources to identify, verify, and profile work injuries that are fatal. Key information about each workplace fatality (such as occupation and other worker characteristics, equipment being used, and circumstances of the event) is obtained by cross-referencing a variety of source records. These records include death certificates, workers compensation records, and reports to federal and state agencies.

2000 CENSUS PROFILES

Major findings of the Michigan Census are:

- * Transportation accidents led all other events and accounted for 32 percent of the 156 fatal occupational injuries in 2000. This was followed by Contact with Objects and Equipment at 24 percent and Assaults and Violent Acts with 17 percent. (Table 1)
- * Sixty two percent of the fatally injured Michigan workers were 25 - 54 years of age.
- * Eight percent of Michigan's fatally injured workers were women.
- * Occupations with the largest number of worker fatalities were Transportation and Material Moving Operations, and Construction trades.
- * Industry groups with the largest number of Michigan fatal work injuries in 2000 were Construction (29), Manufacturing (25), and Services (22). (Table 4.)

BACKGROUND - CENSUS OF FATAL OCCUPATIONAL INJURY PROGRAM

The Census of Fatal Occupational Injuries program, part of the BLS safety and health statistics program, provides the most complete count of fatal work injuries available. The program uses diverse state and federal data sources to identify, verify and profile fatal work injuries. Information about each workplace fatality (occupation and other worker characteristics, equipment being used, and circumstances of the event) is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, and reports to federal

and state agencies. This method assures counts are as complete and accurate as possible. This is the ninth year that the fatality census has been conducted in all 50 states and the District of Columbia.

**Table 1. Number and Percent Distribution of Fatal Occupational Injuries
by Event or Exposure, Michigan, 2000**

1/ Event or Exposure	<u>Fatalities</u>	
	Number	Percent
Total	156	100
Transportation incidents	50	32
Highway	24	15
Collision between vehicles, mobile equipment	13	8
Moving in opposite directions, oncoming	6	4
Moving in intersection	4	3
Vehicle struck stationary object or equipment on side of road	4	3
Noncollision	7	4
Jack-knifed or overturned – no collision	4	3
Nonhighway (farm, industrial premises)	9	6
Noncollision accident	9	6
Overturned	4	3
Aircraft	5	3
Worker struck by vehicle, mobile equipment	12	8
Worker struck by vehicle, mobile equipment in roadway	3	2
Worker struck by vehicle, mobile equipment on side of road	6	4
Worker struck by vehicle, mobile equipment in parking lot or non-road area	3	2
Assaults and violent acts	26	17
Homicides	13	8
Shooting	13	8
Suicide, Self-inflicted injury	12	8
Contact with objects and equipment	37	24
Struck by object	25	16
Struck by falling object	20	13
Caught in or compressed by equipment or objects	10	6

Caught in running equipment or machinery	10	6
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**Table 1. Number and Percent Distribution of Fatal Occupational Injuries
by Event or Exposure, Michigan, 2000
(continued)**

1/ Event or Exposure	<u>Fatalities</u>	
	Number	Percent
Falls	20	13
Fall to lower level	17	11
Fall from roof	7	4
Fall from roof edge	4	3
Fall from nonmoving vehicle	3	2
Fall on same level	3	2
Exposure to harmful substances or environments	16	10
Contact with electric current	9	6
Contact with overhead power lines	7	4
Exposure to caustic, noxious, or allergenic substances	3	2
Fires and explosions	6	4
Explosion	4	3

1/ Based on 1992 BLS Occupational Injury/Illness Classification Manual.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals due to rounding.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 2. Number and Percent Distribution, of Fatal Occupational
Injuries by Selected Characteristics, Michigan, 2000**

Worker Characteristics	Number	Fatalities
		Percent
Total	156	100
Employee Status		
Wage and salary workers 1/	136	87
Self-employed 2/	20	13
Sex		
Men	143	92
Women	13	8
Age		
Both sexes:		
Under 20 years	5	3
20 to 24 years	12	8
25 to 34 years	29	19
35 to 44 years	41	26
45 to 54 years	26	17
55 to 64 years	29	19
65 years and over	14	9

Race		
White	125	80
Black or African-American	12	8
Hispanic or Latino	6	4
American Indian or Alaska Native	3	2
Asian	7	4
Other races	3	2

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1/ May include volunteers and other workers receiving compensation.

2/ Includes paid and unpaid family workers, and may include owners of incorporated businesses, or members of partnerships.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

SOURCE: U.S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

Table 3. Number and Percent Distribution of Fatal Occupational Injuries by Occupation, Michigan, 2000

1/ Occupation	Fatalities	
	Number	Percent
Total	156	100
Managerial and professional specialty	23	15
Executive, administrative, and managerial	17	11
Managers and administrators, n.e.c.	12	8
Professional specialty	6	4
Technical sales, and administrative support	15	10
Technicians and related support occupations	5	3
Technicians, except health, engineering and science	4	3
Airplane pilots and navigators	3	2
Sales occupations	9	6
Supervisors and proprietors, sales occupations	8	5

Service occupations	15	10
Protective service occupations	9	6
Firefighting & fire prevention occupations & supervisors	3	2
Firefighting occupations	3	2
Police and detectives, including supervisors	4	3
Service occupations except protective and household	4	3
Food preparation and service occupations	3	2
Farming, forestry and fishing	17	11
Farming operators and managers	6	4
Managers, farms except horticultural	4	3
Other agricultural and related occupations	10	6
Farm occupations, except managerial	3	2
Farm workers	3	2
Related agricultural occupations	7	4
Groundskeepers and gardeners, except farm	5	3

Table 3. Number and Percent Distribution of Fatal Occupational Injuries by Occupation, Michigan, 2000
(continued)

1/ Occupation	Number	<u>Fatalities</u> Percent
Precision production, craft & repair	29	19
Mechanics and repairers	6	4
Mechanics and repairers, except supervisors	6	4
Electrical and electronic equipment repairers	3	2
Construction trades	19	12
Supervisors, construction occupations	3	2

Supervisors, nec	3	2
Construction trades, except supervisors	16	10
Roofers	4	3
Precision production occupations	3	2
Operators, fabricators, and laborers	53	34
Machine operators, assemblers, and inspectors	10	6
Machine operators and tenders, except precision	8	5
Machine operators, assorted materials	6	4
Miscellaneous machine operators, n.e.c.	5	3
Transportation and material moving operations	32	21
Motor vehicle operators	24	15
Truck drivers	22	14
Material moving equipment operators	8	5
Handlers, equipment cleaners, helpers and laborers	11	7
Construction laborers	6	4

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1/ Based on the 1990 Occupational Classification System developed by the Bureau of the Census.

NOTE: Totals for major categories may include subcategories not shown separately.

Percentages may not add to totals due to rounding.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal Agencies, Census of Fatal Occupational Injuries.

Table 4. Number and Percent Distribution of Fatal Occupational Injuries by Industry, Michigan, 2000

1/ Industry	<u>Fatalities</u>	
	Number	Percent

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Total	156	100
Private Industry	141	90
Agriculture, forestry, and fishing	14	9
Agriculture production - crops	4	3
General farms, primary crop	3	2
Agricultural services	8	5
Crop services	6	4
Crop planting and protecting	5	3
Construction	29	19
General building contractors	6	4
Residential building construction	3	2
Nonresidential building construction	3	2
Heavy construction, except building	6	4
Heavy construction, except highway	6	4
Water, sewer and utility lines	4	3
Special trades contractors	17	11
Carpentry and floor work	3	2
Carpentry work	3	2
Roofing, siding and sheet metal work	5	3
Miscellaneous special trade contractors	4	3
Manufacturing	25	16
Lumber and wood products	3	2
Rubber and miscellaneous plastics products	3	2
Primary metal industries	4	3
Fabricated metal products	4	3
Transportation equipment	4	3
Motor vehicles and equipment	4	3

Table 4. Number and Percent Distribution, of Fatal Occupational Injuries by Industry, Michigan, 2000 (continued)

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1/ Industry	<u>Fatalities</u>	
	Number	Percent
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Transportation & public utilities	16	10
Trucking and warehousing	7	4
Trucking and courier services, except air	7	4
Local trucking, without storage	6	4
Electric, gas and sanitary services	7	4
Electrical services	4	3
Wholesale trade	13	8
Wholesale trade - durable goods	13	8
Lumber and construction materials	4	3
Machinery, equipment and supplies	3	2
Retail trade	18	12
Building materials and garden supplies	3	2
Food stores	3	2
Grocery stores	3	2
Automotive dealers and service stations	3	2
Gasoline service stations	3	2
Eating and drinking places	6	4
Eating places	5	3
Finance, insurance and real estate	3	2
Services	22	14
Business services	4	3
Automotive repair services and parking	6	4
Automotive services except repair	4	3
Automotive services, nec	4	3
Engineering and management services	3	2
Government	15	10
<hr/>		

1/ Classified according to the Standard Industrial Classification Manual, 1987 Edition.

NOTE: Totals for major categories may include subcategories not shown separately.
Percentages may not add to totals due to rounding.

SOURCE: U. S. Dept. of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

**Table 5. Number and Percent Distribution of Fatal Occupational Injuries
by Source of Injury, Michigan, 2000**

Source of Injury	<u>Fatalities</u>	
	Number	Percent
Chemicals and chemical products	6	3.8
Containers	4	2.6
Machinery	21	13.5
Agricultural and garden machinery	3	1.9
Construction, logging and mining machinery	5	3.2
Excavating machinery	3	1.9
Material handling machinery	5	3.2
Conveyors, powered	2	1.3
Metal, woodworking, & special material machinery	3	1.9
Special process machinery	2	1.3
Miscellaneous machinery	2	1.3
Parts and materials	15	9.6
Building materials - solid elements	5	3.2
Bricks, blocks, structure stone	2	1.3
Pipes, ducts, tubing	3	1.9
Fasteners, connectors, ropes, ties	2	1.3
Machine tool and electric parts	5	3.2
Electric parts	4	2.6
Vehicle and mobile equipment parts	2	1.3
Persons, plants, animals and minerals	6	3.8
Plants, trees, vegetation not processed	4	2.6
Trees, logs	4	2.6
Structures and surfaces	22	14.1
Floors, walkways, ground surfaces	20	12.8
Floors	8	5.1
Ground	6	3.8
Parking lots	2	1.3
Other floors, walkways, ground surfaces	2	1.3
Tools, instruments and equipment	2	1.3

**Table 5. Number and Percent Distribution of Fatal Occupational Injuries
by Source of Injury, Michigan, 2000
(continued)**

Source of Injury	<u>Fatalities</u>	
	Number	Percent
Vehicles	53	34.0
Air vehicle	5	3.2
Aircraft, powered fixed wing	4	2.6
Highway vehicle, motorized	39	25.0
Automobile	11	7.1
Truck	23	14.7
Van - passenger or light delivery	2	1.3
Plant and industrial powered vehicles, tractors	7	4.5
Forklift	2	1.3
Tractor	5	3.2
Rail vehicle	2	1.3
Other Sources	21	13.5
Ammunition	15	9.6
Bullets	15	9.6
Atmospheric and environmental conditions	3	1.9
Fire, flame, smoke	2	1.3
Steam, vapors, liquids	3	1.9
Liquids	3	1.9
Unknown	6	3.8
Total	156	100.0

Note: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

Source: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

Table 6
Number and Percent Distribution of Fatal Occupational Injuries
by Part of Body, Michigan, 2000

Part of Body	<u>Fatalities</u>	
	Number	Percent
Head	40	25.6
Cranial region, including skull	33	21.2
Brain	33	21.2
Neck, including throat	3	1.9
Neck, except internal location of diseases or disorders	3	1.9
Trunk	35	22.4
Chest, except internal location of diseases or disorders	9	5.8
Chest, including ribs, internal organs	9	5.8
Back, including spine, spinal cord	3	1.9
Pelvic region	5	3.2
Multiple trunk locations	17	10.9
Lower Extremities	2	1.3
Body Systems	30	19.2
Multiple Body Parts	46	29.5

TOTAL

156

100.0

Note: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

Source: U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

Chart 1
Fatal Occupational Injuries by Nature of Injury Michigan, 2000

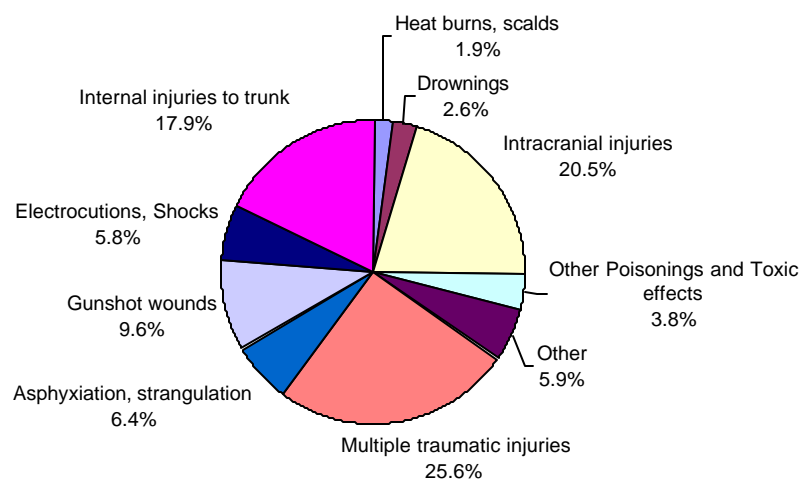
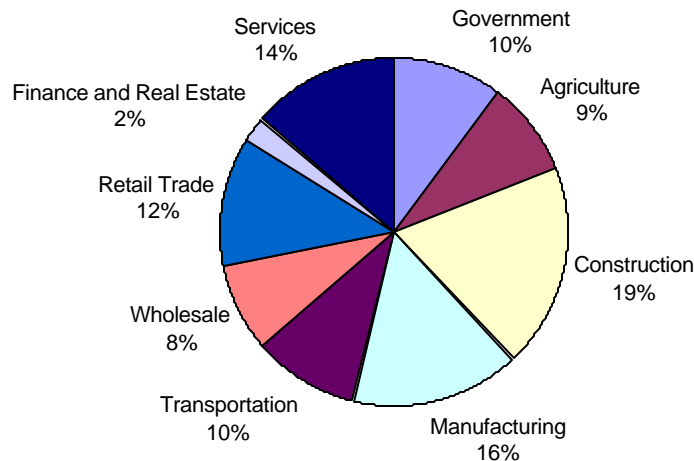


Chart 2
Fatal Occupational Injuries by Industry Division Michigan, 2000



SOURCE: Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

TECHNICAL NOTES

Definitions

For a fatality to be included in the census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in legal work activity or present at the site of the incident as a requirement of his or her job. These criteria are generally broader than the criteria used by Federal and State agencies administering specific laws and regulations. (Fatalities that occur during a person's commute to and from work are excluded from the census counts)

Data presented in this release include deaths occurring in 2000 that resulted from traumatic occupational injuries. An injury is defined as an intentional or unintentional wound or damage to the body resulting from acute exposure to energy, such as heat, electricity or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event,

incident, or series of events within a single workday or shift. Included are open wounds, intracranial and internal injuries, heatstroke, hypothermia, asphyxiation, acute poisonings resulting from short-term exposures limited to the worker's shift, suicides and homicides, and work injuries listed as underlying or contributory causes of death.

Information on work-related fatal illnesses are not reported in the BLS census and are excluded from the attached tables because the latency period of many occupational illnesses and the difficulty of linking illnesses to work make identification of a universe problematic.

Measurement Techniques and Limitations

Data for the Census of Fatal Occupational Injuries are compiled from various state, federal and local administrative sources--including death certificates, workers' compensation reports and claims, reports to various regulatory agencies, medical examiner reports and police reports--as well as news and other non-governmental reports. Diverse sources are used because studies have shown that no single source captures all job-related fatalities. Source documents are matched so that each fatality is counted only once. To ensure that a fatality occurred while the decedent was at work, information is verified from two or more independent source documents, or from a source document and a follow-up questionnaire. Approximately 30 data elements are collected, coded, and tabulated, including information about the worker, the fatal incident, and the machinery or equipment involved.

Federal/State Agency Coverage

The Census of Fatal Occupational Injuries includes data for all fatal work injuries, whether they are covered by the Michigan Occupational Safety and Health Administration (MIOSHA) or other federal or state agencies or are outside the scope of regulatory coverage. Thus, any comparison between the BLS fatality census counts and those released by other agencies should take into account the different coverage requirements and definitions being used.

Several Federal and State agencies have jurisdiction over workplace safety and health. The Occupational Safety and Health Administration (OSHA) and affiliated agencies in States such as Michigan with OSHA approved safety programs cover the largest portion of the nations workers. However, injuries and illnesses occurring in certain industries or activities, such as coal, metal, and nonmetal mining and highway, water, rail, and air transportation, are excluded from MIOSHA coverage because they are covered by other federal agencies, such as the Mine Safety and Health Administration, and various agencies within the Department of Transportation.

Fatalities occurring in activities regulated by federal agencies other than MIOSHA are included in the count of fatal work injuries for Michigan in 2000.

Fatalities occurring among several other groups of workers are generally not covered by any federal or state agencies. These groups include self-employed and unpaid family workers, which accounted for about 13 percent of the fatalities.

Acknowledgments: We appreciate the effort of all agencies that submitted source documents used to achieve the objectives of this program. To collect and publish data on fatal work injuries that is timely, accurate, comprehensive, and useful for injury prevention.

Among these agencies are the Occupational Safety and Health Administration; National Institute for Occupational Safety and Health; the Center for Disease Control and Prevention; the Mine Safety and Health Administration; the U. S. Coast Guard; the Employment Standards Administration (Federal Employees' Compensation and Longshore and Harbor Workers' divisions); the National Transportation Safety Board; the Department of Energy; the National Association of Chiefs of Police; the Michigan vital statistics registrars, coroners, and medical examiners; the Michigan Bureau of Workers Disability Compensation; the Michigan Department of Community Health, State Registrar and Division of Health Statistics; the Michigan State Police Office of Highway and Safety Planning; Local Police Departments; and the state farm bureaus.

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MIOSHA

Michigan Occupational Safety & Health Act